

Illicit Drug Use and Addiction in the United States

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THE TASK of describing the scope of illicit drug use, abuse, and addiction in the United States has been and still is difficult. Most of the data needed for estimates simply do not exist. Those that do exist cannot be used with full confidence because they lack validity or reliability or both.

The types of drugs with which we are concerned are the opiates (popularly known as narcotics), marihuana, and a group of non-narcotic psychoactive drugs that includes sedatives, stimulants, and tranquilizers. Alcohol and tobacco logically qualify as psychoactive drugs of abuse or addiction, but findings about the extent of their use are not included in this paper. Estimates are available from the National Institute of Mental Health (NIMH) Center for Prevention and Control of Alcoholism, Health Services and Mental Health Administration, and the National Clearinghouse for Smoking and Health, Regional Medical Programs Service.

The findings reported here do not represent cumulative summaries over the past decade. These can be found in statements and compilations by officials and agencies. This report is intended as a summary of new findings available in the past year that will portray the current statistical picture of drug abuse.

The only sources of information on illicit drug use nationwide are the results of polls, like the Gallup Poll, that include questions on the use of drugs. Polls, however, are seldom adequate for estimating the scope of the prob-

lem. Gross measures of drug use, such as "ever used," frequently are the only basis for the figures. Information about methodology often is lacking, so that size of the sample and standards of interviewing cannot be judged. Most surveys and polls on illicit drug use cannot guarantee that all responses to questions are honest. Indeed, studies assessing the probability of valid responses on this subject do not exist.

Other than nationwide polls, the sources for estimates consist mainly of one-time studies of high school and college students in scattered locations, using various sampling techniques, instruments, and survey methods. A few studies have been repeated for the second and third years, and drug-use changes in these locations can now be gauged more reliably.

The NIMH has funded several studies now in progress that will improve the nationwide estimates. Data analysis is nearly complete on the first nationwide survey of college students by any Federal agency. The study, conducted by Dr. Peter H. Rossi in the department of social relations at Johns Hopkins University, will include 10,000 students in a sample of 50 colleges across the country. The survey will be repeated later to provide data on changes in the use of drugs by students.

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In another project, a survey questionnaire is being developed by Hofstra University for research in secondary schools. This instrument, if used widely as developed, will provide standard data for comparison of drug-use rates in different parts of the nation.

A third project of importance for estimates of general drug use is a 5-year longitudinal study by Dr. Jack Elinson at the School of Public Health and Administrative Medicine, Columbia University. Both longitudinal and trend data will be collected on drug-using behavior and attitudes of junior and senior high school students in different locations across the country.

The only source of national figures on narcotic addiction is the reporting system maintained by the Bureau of Narcotics and Dangerous Drugs (BNDD). Since the system depends on voluntary reports, the numbers are acknowledged to be underestimates. Although the Bureau accepts information from all sources, in actuality the prime contributors are law-enforcement agencies. Health and social agencies apparently are reluctant to provide names either because the confidentiality of the doctor-patient relationship may be violated or because names may be used for enforcement purposes. The inadequacy of the system for estimating the scope of addiction has been described by several authors and also is mentioned in a 1967 presidential task force report (1).

Assessment of Current and Future Use

Many figures from surveys about the extent of drug abuse treat all such use as homogeneous and current. Some recent surveys have included questions that allow assessment of the proportions of drug users who have discontinued the use of drugs. Taking these proportions into account allows a more realistic appraisal of the drug problem as it exists at one point in time. A few surveys also have included questions on intent to use that allow assessment of the size of the future problem.

Two studies have shown that fairly large proportions of students who once used the common drugs of abuse have discontinued their use. In Montgomery County, Md., in 1969, almost 40

percent of those who had used marihuana or LSD had quit after trying them (2). About 60 percent of the users of heroin or amphetamines and two-thirds of the barbiturate experimenters had not used them again. Similarly, a 1969 survey of nine campuses in the Denver, Colo., area revealed that 40 to 50 percent of the students had discontinued the use of marihuana, amphetamines, or LSD (3).

In two college studies the proportions of students definitely intending to use the common illicit drugs in the future were smaller than the proportions who had already used the drugs. On the nine Colorado campuses, 12 percent of the student respondents definitely planned to use marihuana in the future (3); at Carnegie-Mellon in Pittsburgh, 15 percent (4). These figures can be compared with 26 percent and 24 percent of those groups who reported having ever used marihuana. Two and 3 percent of all the students in the two studies definitely planned to use LSD in the future; these figures can be compared with 5 percent in both studies who had ever used LSD.

Estimates of Narcotic Addiction

The most recent estimate of the number of narcotic addicts in the United States is 68,088, reported by BNDD for the year ending December 31, 1969 (unpublished statistics). More than 95 percent of that number were reported to be heroin users. About 7 percent were under 21 years and more than 55 percent under 30 years. The ratio of men to women was about 5 to 1. There were approximately equal numbers of whites and Negroes. The number of new addicts reported to the Bureau doubled from 1968 to 1969. The large majority of new addicts reported were under 30 years old.

The narcotics register of the New York City Department of Health was established in 1964 in part to test the feasibility of a broad-based collection of cases. Supported by an NIMH grant, the register used a number of different kinds of sources: hospitals, addiction service agencies, police and correctional agencies, private practitioners, and other health and social agencies (5). An estimate of the size of the addict population nationwide can be approached by comparing the BNDD figures with those

from the New York City register for the same time period. It is possible to make the comparison because almost all the heroin addicts in New York State are located in New York City.

<i>Source</i>	<i>Narcotic users or addicts, 1968</i>
BNDD for New York State (narcotics)-----	32, 240
New York City register (heroin)-----	52, 104

This rough comparison yields a ratio of 1 to 1.6, which can be used to project an estimated nationwide total for 1969 of 108,941 narcotic addicts. By the nature of the comparison, this figure is undoubtedly an underestimate.

Other States have become interested in establishing registers of addicts or drug users; New Jersey has one such register in operation now. A wide network for obtaining cases is essential. Even with many sources of reports, registers encounter difficulties in maintaining a complete and unduplicated count of living addicts or users.

Another approach to an estimate of nationwide addiction is through extrapolations of the number of heroin-related deaths investigated by city officials. In New York it has been observed that the number of heroin-related deaths over the years was consistently about 1 percent of the number of reported addicts (personal communication, Dr. Michael Baden, Office of the New York City Chief Medical Examiner, August 1970). Also, it was found in 1969 that only half of the 900 persons whose deaths were attributed directly or indirectly to heroin that year were listed in the city's narcotics register. From both of these figures it is possible to estimate that there were 90,000 to 104,000 heroin addicts in New York City alone in 1969. This estimate is calculated by either of the following formulas:

$$\frac{900 \text{ deaths}}{0.01 \text{ death rate}} = 90,000 \text{ users; or, assuming that heroin deaths are distributed randomly among all users, } \frac{52,104 \text{ registered users}}{0.50 \text{ reporting rate}} = 104,208 \text{ users}$$

in the population. The nationwide total in 1969 may have been more than 200,000—arrived at by doubling the New York City estimate, since, according to BNDD figures, the nationwide total is usually about twice that of New York City.

Figures from the New York City register for 1968 indicate that Negroes composed more than half of the user population and were more than twice as numerous as white users. Puerto Ricans—a separate category in the register's data, though not in the BNDD's—composed 16 percent of the registered users and were about half as numerous as other white users. In both sources of data, Negroes and Puerto Ricans were present in larger proportions than in the general population.

Among the heroin users listed in the New York City register in 1968, 13 percent were under 20 years old when first reported and 42 percent were then under 30 years old. In the same year more than 50 percent of the newly reported heroin users were under 30 years old. The proportions of users under 20 and under 30 years old have been increasing steadily since the register was started.

The ideal estimates of narcotic drug use would be data from ongoing health surveys of samples of the population since they do not depend on varied sources and forms of reporting. More than the use of other drugs of abuse, though, the use of narcotics may be particularly subject to underreporting by respondents because of their fear of exposure to officials. Thus the validity of survey findings that do exist, mainly from high school and college studies, may be low.

All survey statistics on the extent of use in 1969 or 1970 show that the narcotic drugs, heroin in particular, have been used by small proportions of students (6). With one or two exceptions, fewer than 4 percent of the sample reported any use of opiate drugs. Since most recent surveys have been conducted in middle class schools or colleges, the rates of heroin use in high risk areas are not adequately measured. Also, the rate among dropouts is not ordinarily taken into account in studies of schools. A serious lack of data exists on the extent of experimentation with narcotic drugs by adolescents.

Estimates of Marihuana Use

Dr. Stanley Yolles, former director of the NIMH, testified in September 1969 before the Senate Subcommittee to Investigate Juvenile

Delinquency that the use of marihuana had been increasing rapidly over the past 5 years (7). He estimated that 8 to 12 million persons in the United States had had some experience with marihuana. This estimate was made by projecting figures found in separate studies and nationwide polls of selected age or social groups. Yolles also reported that about 10 percent of all users of marihuana were chronic users and about 25 percent occasional users. (In this instance "chronic use" is a loose concept covering all use at the upper levels of frequency, regularity, or both.) The remainder were "tasters" or one-time users. On the basis of those percentages, it was estimated that there were 80,000 to 120,000 chronic users of marihuana in the nation at the time, and 2 to 3 million occasional users. Dr. Yolles also reported that as many as 55 percent of the students in some urban and suburban areas had used marihuana.

That the use of marihuana had been increasing up to 1969 was confirmed in several surveys repeated annually for 2 or 3 years among the same types of persons. In all these surveys the use of marihuana increased 5 to 12 percentage points between 1968 and 1969—in the secondary schools in San Mateo County, Calif. (8), at the University of Maryland (9), at Carnegie-Mellon University (4), and among college students nationwide (10). Undoubtedly, increases would have been found in almost every school or college during that period. Observations of proportions as high as 75 percent for a given school have been made (10).

Now, a little more than a year after Yolles' testimony, there is only one study capable of indicating trends for 1970. The trend of this study is very interesting. For 3 years, the statistics department in San Mateo County has conducted a survey of drug use among a large number of junior and senior high school students. (In 1970, the total was 35,145.) In both survey years 1968 and 1969, there were steady, large increases in the use of marihuana. The increase in 1970, however, was decidedly smaller. For boys there was an average 1.6 percentage point increase in "any use" between 1969 and 1970 instead of the 7.9 percentage point increase between 1968 and 1969. For girls the increase was greater, but there was a definite lessening of the former increase. An aver-

age increase of 7.2 percentage points from 1968 to 1969 declined to a 3.4 percentage point increase in 1970. These changes were not a function of a statistical "ceiling effect" that sometimes results when there is little room for figures to change. The proportions having had "any use" during 1970 ranged from 32 to 51 percent. At these levels there was sufficient room for large increases, but they did not occur.

Even more important than the lessening of large increases in the use of marihuana in San Mateo County high schools, the seventh and eighth grade classes showed a decrease in the use of marihuana between 1969 and 1970. In every category of student (by age, grade, and sex), the use of marihuana declined slightly from the previous year's figures.

Changes in the use of marihuana in one county's schools cannot represent the situation generally in schools across the country. In many schools and colleges there will continue to be increases in use—large increases. However, schools on the West Coast were the first to experience the onslaught of drug use, and their recent experience may be the harbinger of a stabilization of rates or of a decline in interest among students.

If the increased use of drugs among students is now slackening, the decline may be outweighed by more interest in marihuana on the part of out-of-school young adults. A study of marihuana use (one or more times) by adults 18 years or older in San Francisco in 1968 indicated that almost the same proportions (about 40 percent) of noncollege young adults as college students of the same age groups had used the drug (11, 12). There are virtually no sample surveys of other adults available, however, to judge the strength of this possibility.

Estimate of LSD Use

Yolles testified before a Senate Subcommittee in March 1968 (13) that the United States had witnessed a significant decline in LSD use in the preceding year. This assessment was based on observations by college mental health personnel in 1968 (14) when there were virtually no published studies of drug use among high school students. Since 1968, reports on high school populations show that the use of LSD had spread to younger students and that the

levels of use were at least as high or higher in high schools as in colleges. In 1969 in San Mateo County, for example, 23 percent of the senior boys reported using LSD in the preceding year.

Three surveys of San Mateo County secondary schools at yearly intervals indicated a stabilization or lessening in the use rates of LSD (8). All changes from 1969 to 1970 were decreases in the proportions who had used LSD except for small increases among sophomore and senior girls. The average decline for high school boys was 1.7 percentage points. Use of LSD among seventh and eighth grade students declined further. Again, these changes cannot serve as a predictor of a nationwide trend, but they are encouraging.

Estimates of Other Drug Use

Yolles (7) also testified in September 1969 that 250,000 to 500,000 persons had used the common non-narcotic drugs (sedatives, stimulants, related drugs, and certain tranquilizers). It is difficult in estimating the abuse of these drugs to draw a clear line between the illegal use of such drugs, by purchasing them on the street or by other illegal means, and the unwise but legal therapeutic misuse of prescribed or over-the-counter drugs. Both types of abuse can be detrimental to the user and his family and to society.

The most recent surveys of illegal use (that is, without medical supervision) of so-called "soft" drugs among high school and college students show that the amphetamines were used less widely than marihuana but more widely than LSD. Tranquilizers and barbiturates were used somewhat less widely, in an illegal manner, than amphetamines. More persons have used all three of these drugs than have used LSD or the opiate drugs.

There is no doubt that study of the misuse of legally obtained prescribed or over-the-counter drugs would show that some adults in all ages and classes are vulnerable to this kind of abuse. Unfortunately, the available information on legal use of drugs is not ordinarily compiled in such a way that these groups of abusers can be identified. The following overview of recent findings provides some background on the use of the broad class of psychotropic drugs.

Extent of Use of Psychotropic Agents

Drugs used to treat psychiatric disorders or emotional symptoms fall into a general class of psychotropic agents, defined as those substances that have their main or principal effect on mood, thought processes, or behavior. The major and minor tranquilizers, antidepressants, stimulants, sedatives, and hypnotics comprise this group. Of all the prescriptions filled in 1967, 17 percent were written for psychotropic drugs. Minor tranquilizers including meprobamate and diazepam, hypnotic drugs including short-acting barbiturates and glutethimide, and stimulants including amphetamines were the classes of prescriptions acquired most frequently (15).

Results of a survey in one State of the use of psychotropic drugs, both prescription and over-the-counter, in 1967 revealed that about one adult in four took such a drug in the preceding 12 months, about half had taken them at some time in their lives, but only 17 percent had used them frequently.

The psychotropic drugs were used most in the over-20 group, principally during ages 40 to 59. Stimulant drugs, however, were used more extensively during young adulthood. (Use was closely related to purposes of appetite suppression and anti-obesity.) Sedatives and hypnotics were used more extensively in the over-40 group.

In an analysis of prescribing practices in 1968, examination of the uses of major classes of psychotropic drugs showed that percentages varied widely for psychiatric compared with nonpsychiatric diagnoses. Sixty-four percent of antidepressants were used for those with psychiatric diagnoses, while only 10 percent of sedatives were used for psychiatric disorders. Nevertheless, almost all prescribing for these drugs fell into categories of desired psychological actions such as tranquilization, anti-depression, or anti-insomnia. The striking exception to this pattern was the large proportion (90 percent) of stimulant prescriptions written for anti-obesity action.

Discussion

Most studies and sources of information describing the scope of the problem are assessments of drug use or of addiction. There are a

number of other potential sources of information of an epidemiologic nature for gauging the extent of the problem. In general they tap instances of the adverse effects of the drugs or their administration, such as hepatitis cases, "bad trips," visits to physicians or clinics, including "free" clinics, drug dependence in hospital patients, and deaths due directly or indirectly to drug use. Those sources have not been systematically surveyed but could serve as a barometer of the severity of effects of drug abuse. In order for such statistics to serve well, they should be tied to reliable estimates of use, so that rates of adverse effects could be computed.

Even the surveying of populations of drug users has not been carried out as thoroughly as possible. Recent reports about the use of drugs by mental patients, by industrial employees, and by servicemen point to the need for a wider net for systematic collection of estimates of use.

An example of a series that now provides useful trend data is the number of deaths attributed to drug abuse, compiled annually by the New York City medical examiner. The numbers have been increasing dramatically from 1961 to 1969 (see table). As of May 1970 the number of deaths of drug users reported for 1970 was 450, about 75 of them teenagers. If such figures were to be collected and summarized from representative locations for purposes of making nationwide estimates, agreement would have to be reached on the definitions of drug abuse and drug-related deaths.

Assessing drug abuse and addiction has special difficulties beyond the ordinary precautions for assuring statistical reliability and validity. Drug users, as stated before, are reluctant to admit to illegal behavior in interviews or questionnaires. To improve the probability of valid responses, it is advisable to tell the respondents that the information is confidential or that they are immune from prosecution. In extreme cases, researchers may be subject to subpoena of their records or their knowledge of illegal drug use by respondents. Few States protect confidentiality—New York is one—or provide immunity to researchers—as do Massachusetts and New Hampshire.

Difficulties also arise in attempting to collect data in classrooms. Many principals and boards

Increase in deaths from drug abuse in New York City, 1961-69

Year	Total deaths	Deaths of users 24 years old or younger
1961-----	311	102
1962-----	201	61
1963-----	242	81
1964-----	346	115
1965-----	306	105
1966-----	338	123
1967-----	656	224
1968-----	654	213
1969-----	950	504

of education are opposed to the use of the school day for this purpose or do not wish to risk parental disapproval. In many schools parental approval must be obtained for any testing of pupils. Finally, permission to survey a school population is often denied because of the fear of adverse publicity.

Lack of confidentiality laws also hampers the establishment and proper maintenance of case registers, since professional workers and agencies often do not want to divulge the names of their patients and clients. (Indeed, assurance of confidentiality sometimes is requested by an addict seeking help or treatment.) Registers also face shortages of personnel and financial support.

The difficulties of gathering statistics on abuse and addiction are many; however, there is great demand for such information and much interest in disseminating reliable facts. The time seems ripe for expansion and improvement in this field.

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Information Science at University of Pittsburgh

A new Interdisciplinary Doctoral Program in Information Science at the University of Pittsburgh is aimed at meeting the need for specialists who can organize the flood of information spawned by the 20th century.

The program, headed by Prof. Allen Kent, director of communications programs at the university, and Dr. Anthony Debons, professor of information science, is supported in part by a contract from the Commonwealth of Pennsylvania Science and Engineering Foundation.

Pitt's Interdisciplinary Doctoral Program in Information Science enrolled its first students in September 1969. The students come from varying backgrounds—engineering, the social sciences, and the humanities. The program accepts students with undergraduate majors in almost any discipline, but when they complete their studies in information science they will have well-rounded backgrounds in the behavioral, systems, computing, engineering, and basic sciences.

The humanistically oriented program is de-

signed to provide the student with a deep appreciation of man's role in his use of information and communication technology in day-to-day pursuits. How man will use computer information is an important concept in information science. A computer program is useless if it uses a code which man cannot comprehend.

It is anticipated that graduates from the program will occupy positions in government, education, and industry. It is hoped that soon stock market exchanges, hospitals, libraries, and many other kinds of enterprises will hire information scientists to help them cope with the vast amount of data they need to do their jobs effectively. The information scientist will be looking for new ways to package information so that already existing knowledge can be more effectively retrieved and used. He will help scientists in other fields develop new information systems for city management, law enforcement, traffic management, and education.